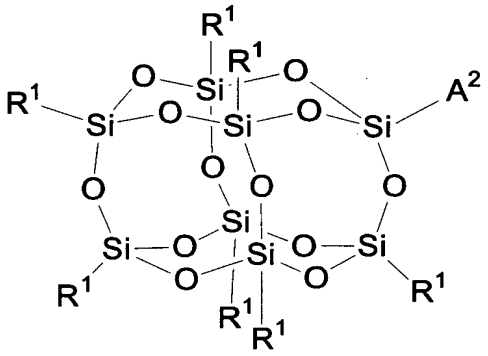
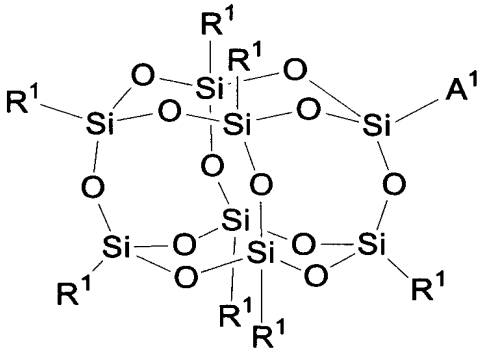
What is claimed is:

1. A production process for a silicon compound represented by formula (1), characterized by using a silicon compound represented by formula (2), wherein:



(1)



(2)

in formula (1), each of seven R^1 is a functional group independently selected from the group consisting of (a) hydrogen, (b) alkyl wherein each hydrogen may be optionally substituted with fluorine and each $-CH_2-$ group may be optionally replaced with –O–, –CH=CH–, cycloalkylene or cycloalkenylene, (c) substituted or unsubstituted aryl, and (d) substituted or unsubstituted arylalkyl wherein each hydrogen of the alkylene group may be optionally substituted with fluorine and each $-CH_2-$ group of said alkylene may be optionally replaced with –O– or –CH=CH–; and A^2 is a hydroxyl-

terminal organic functional group, and in formula (2), each of R^1 is the same as R^1 in formula (1), and A^1 is an organic functional group containing an acyloxy group.

2. The production process according to Claim 1, wherein each of seven R^1 in formula (1) is independently selected from the group consisting of: hydrogen; C_1-C_{45} alkyl wherein each hydrogen may be optionally substituted with fluorine and each $-CH_2-$ group may be optionally replaced with $-O-$, $-CH=CH-$, cycloalkylene, or cycloalkenylene; substituted or unsubstituted aryl; and substituted or unsubstituted arylalkyl wherein each hydrogen of the alkylene is optionally substituted with fluorine and each $-CH_2-$ group of said alkylene may be optionally replaced with $-O-$ or $-CH=CH-$.

3. The production process according to Claim 1, wherein each of seven R^1 in formula (1) is independently selected from the group consisting of: hydrogen; and C_1-C_{30} alkyl wherein each hydrogen may be optionally substituted with fluorine, and each $-CH_2-$ group may be optionally replaced with $-O-$ or cycloalkylene.

4. The production process according to Claim 1, wherein each of seven R^1 in formula (1) is independently selected from the group consisting of: C_1-C_{20} alkenyl wherein each hydrogen may be optionally substituted with fluorine and each $-CH_2-$ group may be optionally replaced with $-O-$ or cycloalkylene; and C_1-C_{20} alkyl wherein each $-CH_2-$ group is optionally replaced with cycloalkenylene and in the $-CH_2-$ group optionally replaced with cycloalkylene, each hydrogen may be optionally substituted with fluorine.

5. The production process according to Claim 1, wherein each of seven R^1 in formula (1) is independently selected from the group consisting of: naphthyl; and phenyl wherein each hydrogen may be optionally substituted with halogen or C_1-C_{10} alkyl where each hydrogen may be optionally substituted with fluorine and each $-CH_2-$

group may be optionally replaced with –O–, –CH=CH–, cycloalkylene or phenylene.

6. The production process according to Claim 1, wherein each of seven R^1 in formula (1) is independently selected from the group consisting of phenylalkyls: wherein each hydrogen atom in a benzene ring may be optionally substituted with halogen or C_1-C_{12} alkyl where each hydrogen may be optionally substituted with fluorine and each $–CH_2–$ group may be optionally replaced with –O–, –CH=CH–, cycloalkylene or phenylene, and in the alkylene of the phenylalkyl, the number of carbons of the alkylene group is 1 to 12; each hydrogen of said alkylene group may be optionally substituted with fluorine; and each $–CH_2–$ group of said alkylene group may be optionally replaced with –O– or –CH=CH–.

7. The production process according to Claim 1, wherein each of seven R^1 in formula (1) is independently selected from the group consisting of; C_1-C_8 alkyl wherein each hydrogen may be optionally substituted with fluorine and each $–CH_2–$ group may be optionally replaced with –O–, –CH=CH–, cycloalkylene or cycloalkenylene; phenyl wherein each hydrogen may be optionally substituted with halogen, methyl or methoxy; unsubstituted naphthyl; and phenylalkyl wherein (a) each phenyl hydrogen may be optionally substituted with fluorine, C_1-C_4 alkyl, ethenyl or methoxy, (b) the number of carbons of the alkylene is 1 to 8, and each $–CH_2–$ group of said alkylene may be optionally replaced with –O– or –CH=CH–.

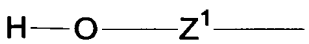
8. The production process according to Claim 1, wherein all of seven R^1 in formula (1) are the same functional groups selected from the group consisting of: C_1-C_8 alkyl wherein each hydrogen may be optionally substituted with fluorine and each $–CH_2–$ group may be optionally replaced with –O–, –CH=CH–, cycloalkylene or cycloalkenylene; phenyl wherein each hydrogen may be optionally substituted with halogen, methyl or methoxy; unsubstituted naphthyl; and phenylalkyl wherein (a) each

phenyl hydrogen may be optionally substituted with fluorine, C_1-C_4 alkyl, ethenyl or methoxy, (b) the number of carbons of the alkylene is 1 to 8, and each $-CH_2-$ group of said alkylene may be optionally replaced with $-O-$ or $-CH=CH-$.

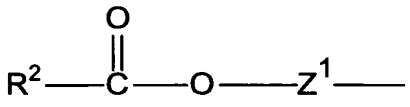
9. The production process according to Claim 1, wherein all of seven R^1 in formula (1) are the same functional groups selected from C_1-C_8 alkyls wherein each hydrogen may be optionally substituted with fluorine and each $-CH_2-$ group may be optionally replaced with $-O-$, $-CH=CH-$, cycloalkylene, or cycloalkenylene.

10. The production process according to Claim 1, wherein all of seven R^1 in formula (1) are the same functional groups selected from the group consisting of: phenyl wherein each hydrogen may be optionally substituted with halogen, methyl or methoxy; naphthyl; and phenylalkyl wherein (a) each hydrogen of the phenyl may be substituted with fluorine, C_1-C_4 alkyl, ethenyl or methoxy, (b) the number of carbons of the alkylene group is 1 to 8, and each $-CH_2-$ group of said alkylene may be optionally replaced with $-O-$.

11. The production process according to Claim 1, wherein A^2 in formula (1) is a group represented by formula (3), and A^1 in formula (2) is a group represented by formula (4),



(3)



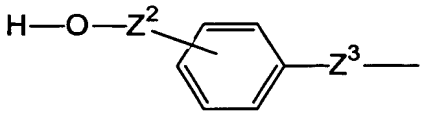
(4)

wherein:

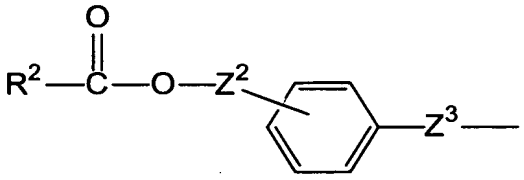
in formula (3), Z^1 is (a) C_1-C_{22} alkylene where each $-CH_2-$ may be optionally

replaced with –O–, or (b) C_3-C_8 alkenylene where each –CH_2– may be optionally replaced with –O–; and in formula (4), R^2 is selected from the group of C_1-C_{17} alkyl where each hydrogen may be optionally substituted with fluorine, C_2-C_3 alkenyl, substituted or unsubstituted phenyl and unsubstituted phenylalkyl.

12. The production process according to Claim 1, wherein A^2 in formula (1) is a group represented by formula (5), and A^1 in formula (2) is a group represented by formula (6),



(5)



(6)

wherein:

in formula (5), (a) Z^2 represents a single bond or C_1-C_3 alkylene and may be bound to the benzene ring at any position, (b) Z^3 is (i) C_1- C_{22} alkylene where each –CH_2– may be optionally replaced with – O– or (ii) C_3-C_8 alkenylene where each –CH_2– may be optionally replaced with – O–, and in formula (6), R^2 is selected from the group consisting of C_1-C_{17} alkyl, C_2-C_3 alkenyl, substituted or unsubstituted phenyl and unsubstituted phenylalkyl, and Z^2 and Z^3 are the same as Z^2 and Z^3 in formula (5).

13. The production process according to Claim 11, wherein: Z^1 in formula (3) is C_1-C_{22} alkylene where each –CH_2– group may be optionally replaced with –O–; and R^2 in formula (4) is selected from the group consisting of C_1-C_{17} alkyl where each hydrogen may be optionally substituted with fluorine, and C_2-C_3 alkenyl where each –CH_2– group

may be optionally replaced with –O–.

14. The production process according to Claim 11, wherein Z^1 in formula (3) is C_1-C_6 straight-chain alkylene where each $–CH_2–$ group may be optionally replaced with –O–; and R^2 in formula (4) is methyl.

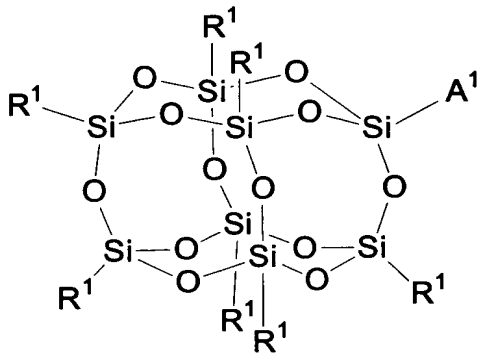
15. The production process according to Claim 12, wherein Z^2 in formula (5) represents a single bond or C_1-C_3 alkylene where each $–CH_2–$ group may be optionally replaced with –O–, and Z^3 is C_1-C_{22} alkylene where each $–CH_2–$ group may be optionally replaced with –O– and may be bound to the benzene ring at any carbon position; and R^2 in formula (6) is selected from the group consisting of (a) C_1-C_{17} alkyl where each hydrogen may be optionally substituted with fluorine and each $–CH_2–$ group may be optionally replaced with –O–, and (b) C_2-C_3 alkenyl where each $–CH_2–$ group may be optionally replaced by –O–.

16. The production process according to Claim 12, wherein Z^2 in formula (5) represents a single bond or $–CH_2–$, Z^3 in formula (5) is $–C_2H_4–$, and R^2 in formula (6) is methyl.

17. The production process according to Claim 1, wherein all of seven R^1 in formula (1) are the same groups selected from the group consisting of ethyl, 2-methylpropyl, 2,4,4-trimethylpentyl, cyclopentyl, cyclohexyl, trifluoropropyl, tridecafluoro-1,1,2,2-tetrahydrooctyl, and unsubstituted phenyl.

18. The production process according to Claim 1, wherein all of seven R^1 in formula (1) are either unsubstituted phenyl or trifluoropropyl.

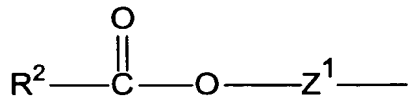
19. A silicon compound represented by formula (2),



(2)

wherein: in formula (2), each of seven R^1 is independently selected from the group consisting of (a) hydrogen, (b) alkyl where each hydrogen may be optionally substituted with fluorine and each $-CH_2-$ group may be optionally replaced with $-O-$, $-CH=CH-$, cycloalkylene or cycloalkenylene, (c) substituted or unsubstituted aryl, and (d) substituted or unsubstituted arylalkyl where each hydrogen of the alkylene may be optionally substituted with fluorine and each $-CH^2-$ group of said alkylene may be optionally replaced with $-O-$ or $-CH=CH-$; and A^1 is an organic group that has an acyloxy group.

20. The silicon compound according to Claim 19, wherein A^1 in formula (2) is a group represented by formula (4),

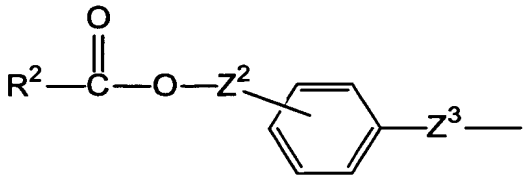


(4)

wherein: in formula (4), R^2 is selected from the group consisting of (a) C_1-C_{17} alkyl where each hydrogen may be optionally substituted with fluorine, (b) C_2-C_3 alkenyl, (c) substituted or unsubstituted phenyl and (d) unsubstituted phenylalkyl; and Z^1 is either C_1-C_{22} alkylene where each $-CH_2-$ group may be optionally replaced with $-$

O–, or C_3-C_8 alkenylene where each $-CH_2-$ group may be optionally replaced by –O–.

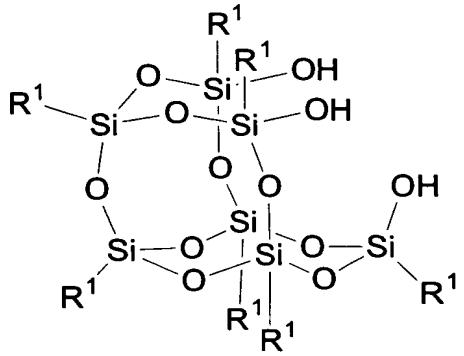
21. The silicon compound according to Claim 19, wherein A^1 in formula (2) is a group represented by formula (6),



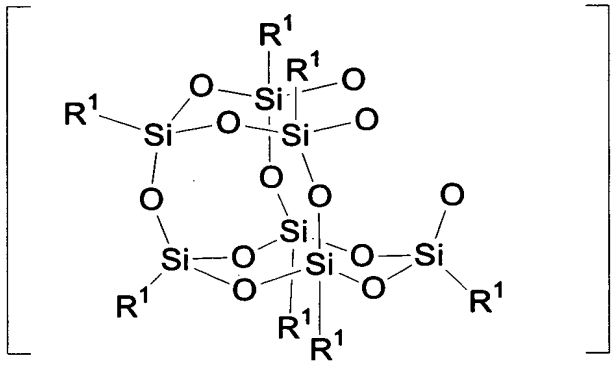
(6)

wherein: in formula (6), R^2 is selected from the group consisting of C_1-C_{17} alkyl; C_2-C_3 alkenyl; substituted or unsubstituted phenyl and unsubstituted phenylalkyl; and Z^2 represents a single bond or C_1-C_3 alkylene that may be bound to the benzene ring at any carbon position; and Z^3 is either C_1-C_{22} alkylene where each $-CH_2-$ group may be optionally replaced with –O–, or C_3-C_8 alkenylene where each $-CH_2-$ may be optionally replaced by –O–.

22. The production process according to Claim 1, characterized by providing a silicon compound represented by formula (2) through reacting a trichlorosilane compound having an acyloxy group with either (a) a compound represented by formula (7) or (b) a compound represented by formula (12) and acid-catalyzed transesterificating in alcohol,



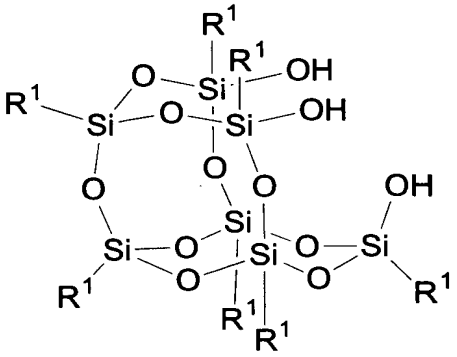
(7)



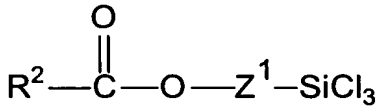
·3M (12)

wherein: in formulas (7) and (12), R^1 is the same as R^1 in formula (1) and M is a monovalent alkali metal atom.

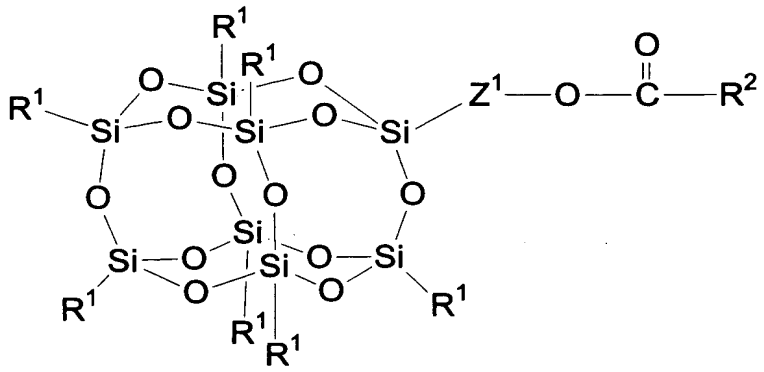
23. The production process according to Claim 11, characterized by providing a silicon compound represented by formula (10) through reacting a compound represented by formula (8) with a compound represented by formula (7) and acid-catalyzed transesterificating in alcohol,



(7)



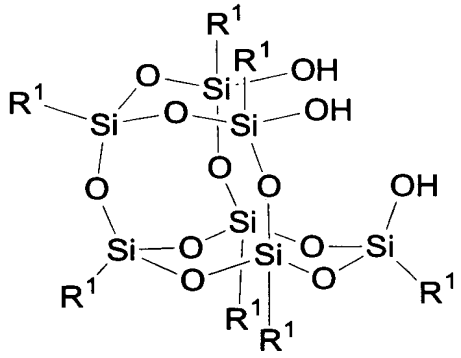
(8)



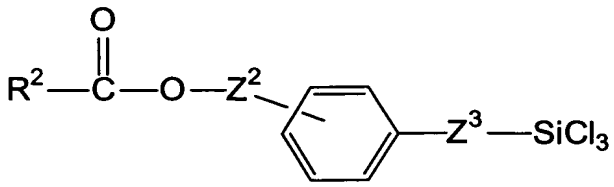
(10)

wherein: in formula (7), R^1 is the same as R^1 in formula (1) as described in Claim 1, in formula (8), R^2 and Z^1 are the same as R^2 and Z^1 in formula (4) as described in Claim 11, and in formula (10), R^1, R^2 and Z^1 are the same as R^1, R^2 and Z^1 in formulas (7) and (8).

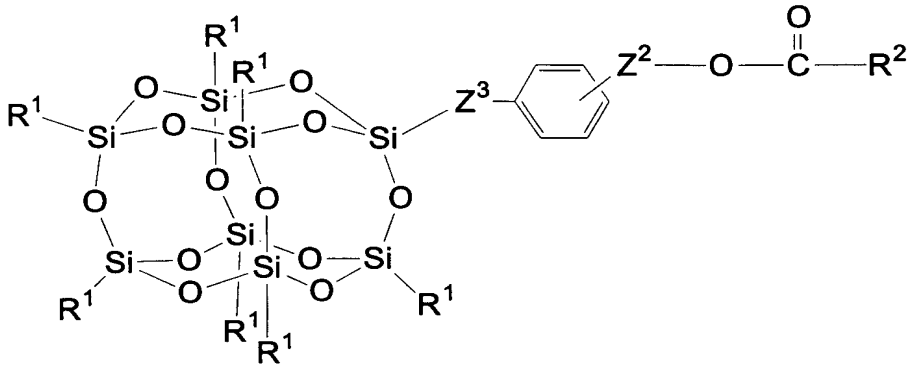
24. The production process according to Claim 12, characterized by providing a silicon compound represented by formula (11) through reacting a compound represented by formula (9) with a compound represented by formula (7) and acid-catalyzed transesterificating in alcohol,



(7)



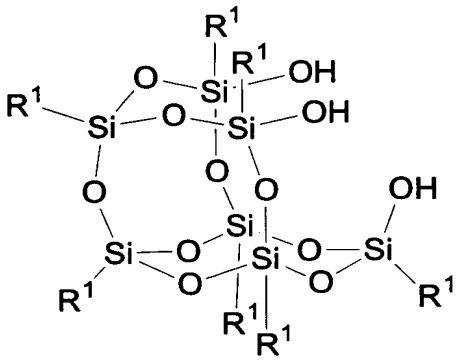
(9)



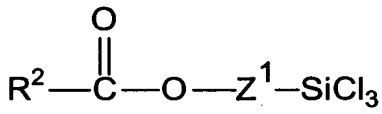
(11)

wherein: in formula (7), R^1 is the same as R^1 in formula (1) as described in Claim 1, in formula (9), R^2, Z^2, and the binding position thereof to the benzene ring are the same as R^2, Z^2, and the binding position thereof to the benzene ring in formula (6) as described in Claim 12, and in formula (11), the characters and the binding position thereof to the benzene ring are the same as the characters and the binding position thereof to the benzene ring in formulas (7) and (9).

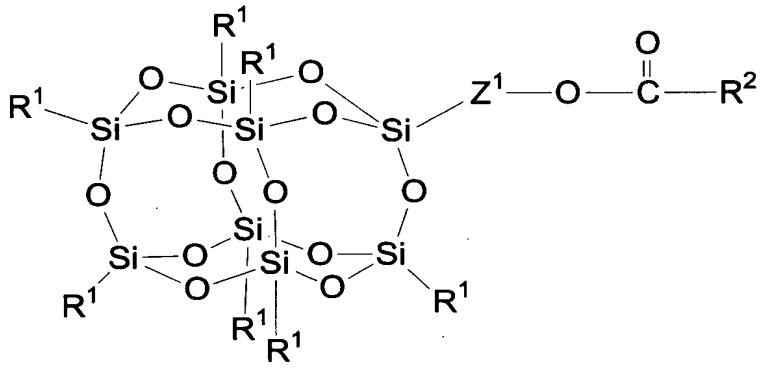
25. The production process according to Claim 11, characterized by providing a silicon compound represented by formula (10) through reacting a compound represented by formula (8) with a compound represented by formula (7) and acid-catalyzed transesterificating in alcohol,



(7)



(8)

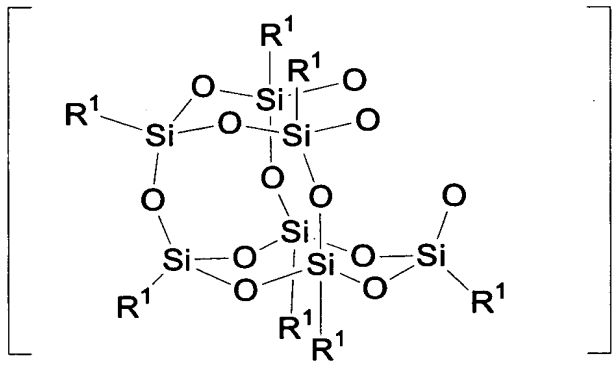


(10)

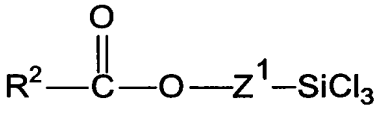
wherein: in formula (7), all of seven R^1 are the same functional groups selected from the group consisting of ethyl, 2-methylpropyl, 2,4,4-trimethylpentyl, cyclopentyl, cyclohexyl, trifluoropropyl, tridecafluoro-1,1,2,2-tetrahydrooctyl and unsubstituted phenyl, in formula (8), R^2 and Z^1 are the same as R^2 and Z^1 in formula (4) as described in Claim 11, and in formula (10), R^1,R^2 and Z^1 are the same as R^1,R^2 and Z^1 in formula (7) and (8).

26. The production process according to Claim 11, characterized by providing a silicon compound represented by formula (10) through reacting a compound represented by formula (8) with a compound represented by formula (12) and acid-catalyzed

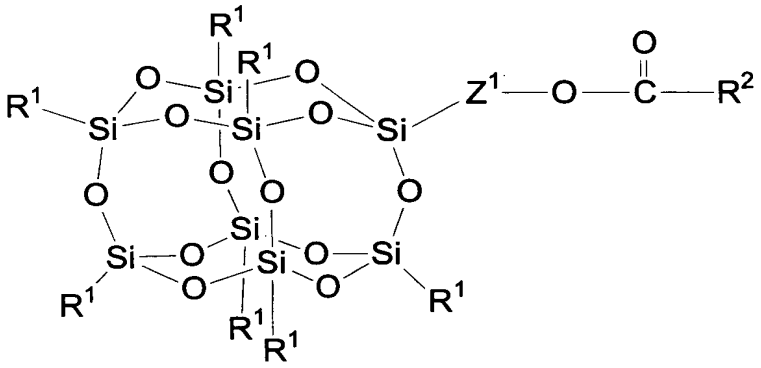
transesterificating in alcohol,



·3M (12)



(8)

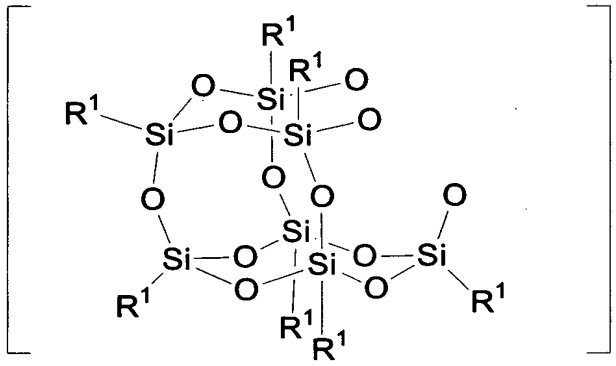


(10)

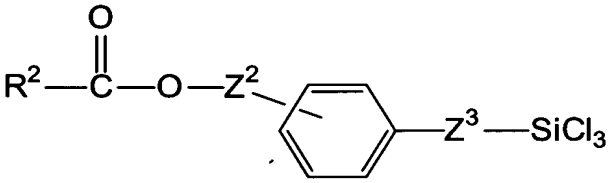
wherein: in formula (12), R^1 is the same as R^1 in formula (1) as described in Claim 1 and M is a monovalent alkali metal atom, in formula (8), R^2 and Z^1 are the same as R^2 and Z^1 in formula (4) as described in Claim 11, and in formula (10), R^1, R^2, and Z^1 are the same as R^1, R^2, and Z^1 in formulas (12) and (8).

27. The production process according to Claim 12, characterized by providing a silicon compound represented by formula (11) through reacting a compound represented by formula (9) with a compound represented by formula (12) and acid-catalyzed

transesterificating in alcohol,



·3M (12)



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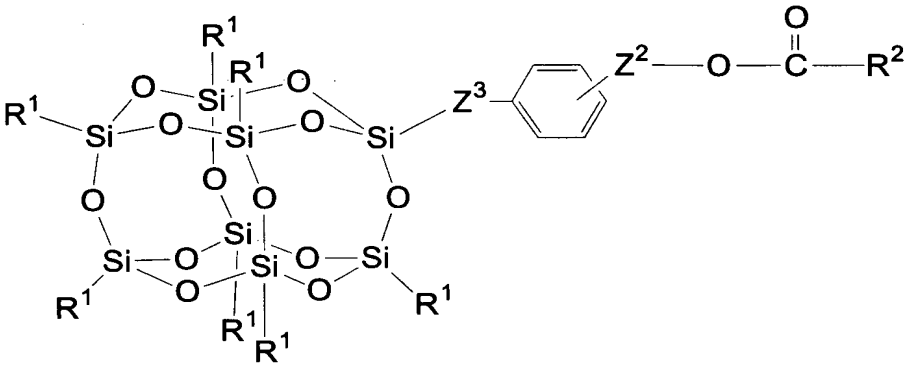
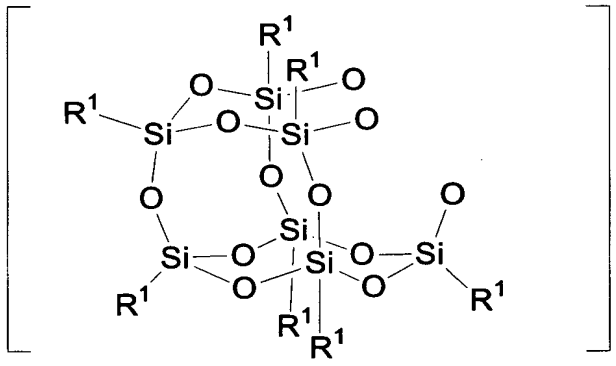


(11)

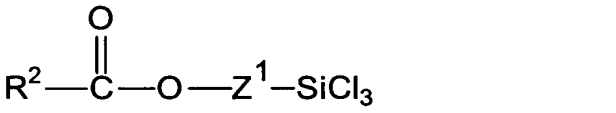
wherein: in formula (12), R^1 is the same as R^1 in formula (1) as described in Claim 1 and M is a monovalent alkali metal atom, in formula (9), R^2, Z^2, Z^3, and the binding position thereof to the benzene ring are the same as R^2, Z^2, Z^3, and the binding position thereof to the benzene ring in formula (6) as described in Claim 12, and in formula (11), the characters and the binding position thereof to the benzene ring are the

same as the characters and the binding position thereof to the benzene ring in formulas (12) and (9).

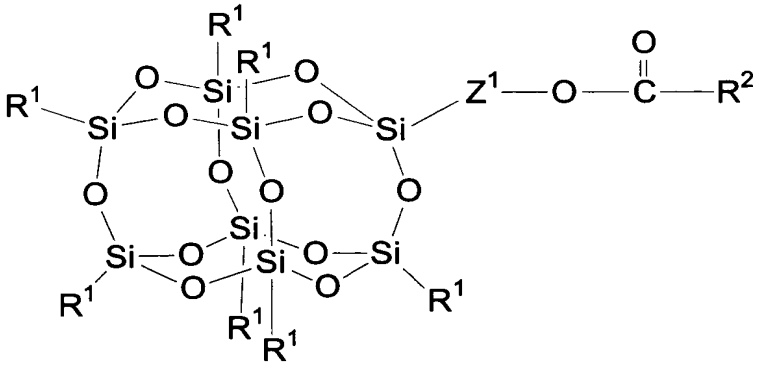
28. The production process according to Claim 11, characterized by providing a silicon compound represented by formula (10) through reacting a compound represented by formula (8) with a compound represented by formula (12) and acid-catalyzed transesterificating in alcohol,



·3M (12)



(8)

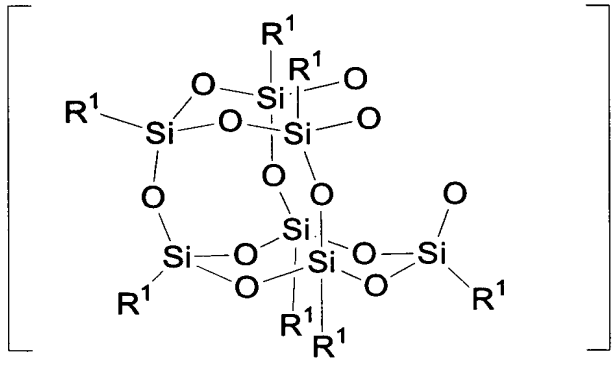


(10)

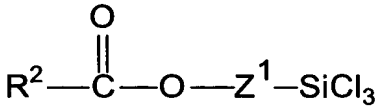
wherein: in formula (12), all of seven R^1 are the same groups selected from the group consisting of (i) C_1-C_8 alkyl where each hydrogen may be optionally substituted

with fluorine and each $-CH_2-$ group may be optionally replaced with –O–, –CH=CH–, cycloalkylene or cycloalkenylene, (ii) phenyl where each hydrogen may be optionally substituted with halogen, methyl or methoxy, (iii) unsubstituted naphthyl and (iv) phenylalkyl where (A) each benzene hydrogen may be substituted with fluorine, C_1-C_4 alkyl, ethenyl or methoxy, (B) each $-CH_2-$ group of the alkylene may be optionally replaced with –O– or –CH=CH–, and M is a monovalent alkali metal atom, in formula (8), R^2 and Z^1 are the same as R^2 and Z^1 in formula (4) as described in Claim 11, and in formulas (12) and (8).

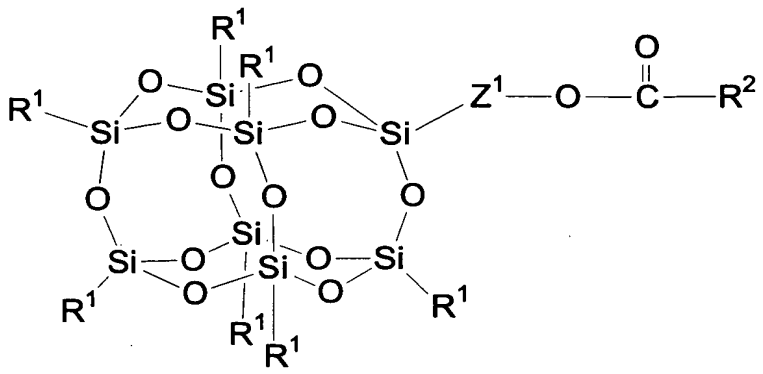
29. The production process according to Claim 11, characterized by providing a silicon compound represented by formula (10) through reacting a compound represented by formula (8) with a compound represented by formula (12) and acid-catalyzed transesterificating in alcohol,



·3M (12)



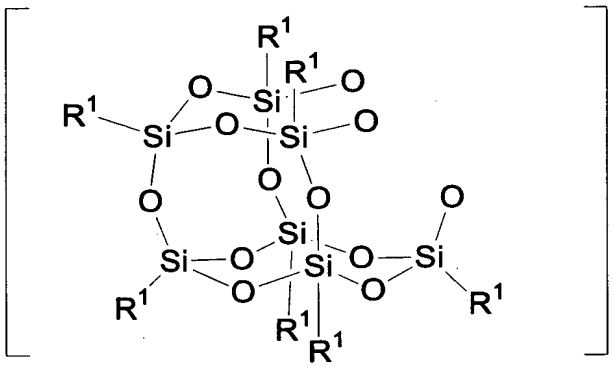
(8)



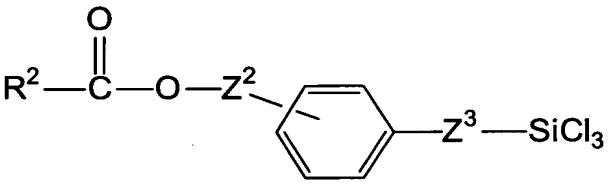
(10)

wherein: in formula (12), all of seven R^1 are the same groups selected from the group consisting of (i) ethyl, (ii) 2- methylpropyl, (iii) 2,4,4,-trimethylpentyl, (iv) cyclopentyl, (v) cyclohexyl, (vi) trifluoropropyl, (vii) tridecafluoro-1,1,2,2-tetrahydrooctyl, and (viii) unsubstituted phenyl, and M is a monovalent alkali metal atom, in formula (8), R^2 and Z^1 are the same as R^2 and Z^1 in formula (4) as described in Claim 11 of formula (10), R^1, defined below through reaction of (a) a compound of formula (12), and in formula (10), R^1, R^2 and Z^1 are the same as R^1, R^2 and Z^1 in formulas (12) and (8).

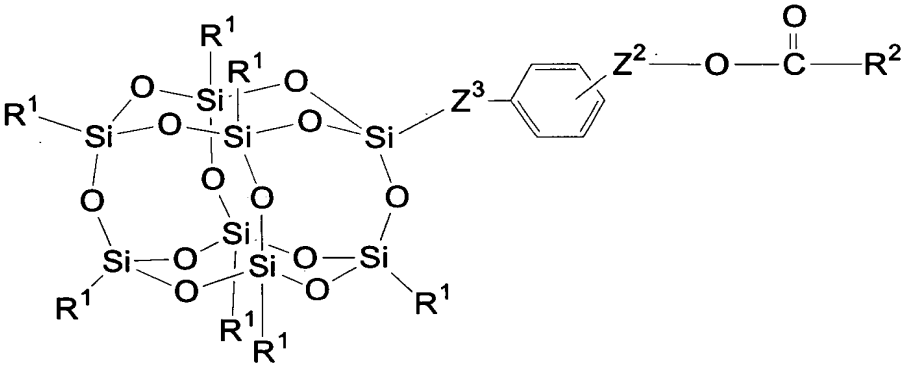
30. The production process according to Claim 12, characterized by providing a silicon compound represented by formula (11) through reacting a compound represented by formula (9) with a compound represented by formula (12) and acid-catalyzed transesterificating in alcohol,



·3M (12)



(9)

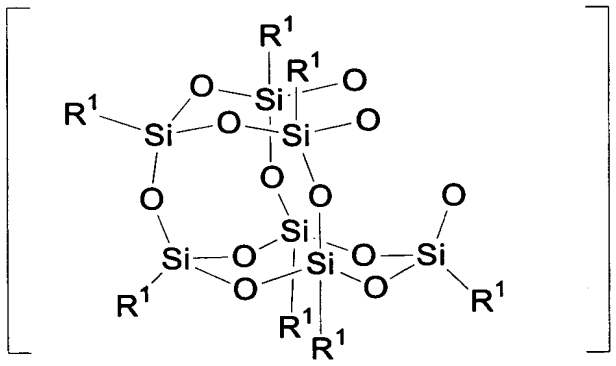


(11)

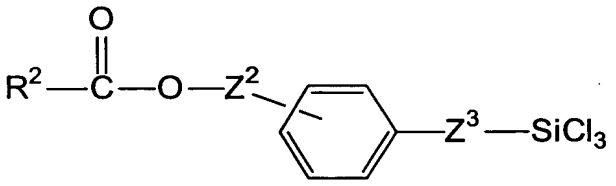
wherein: in formula (12), all of seven R^1 are the same groups selected from the group consisting of (i) C_1-C_8 alkyl wherein each hydrogen may be optionally substituted with fluorine and each $-CH_2-$ group may be optionally replaced with –O–, –CH=CH–, cycloalkylene or cycloalkenylene, (ii) phenyl wherein each hydrogen may be optionally substituted with halogen, methyl or methoxy, (iii) unsubstituted naphthyl and (iv) phenylalkyl wherein each benzene hydrogen is optionally substituted with fluorine, C_1-C_4 alkyl, ethenyl or methoxy and each $-CH_2-$ group of the akylene may be optionally

replaced with –O– or –CH=CH–, and M is a monovalent alkali metal atom, in formula (9), R^2, Z^2, Z^3, and the binding position thereof to the benzene ring and are the same as R^2, Z^2, Z^3, and the binding position thereof to the benzene ring in formula (6) as described in Claim 12, and in formula (11), the characters and the binding position thereof to the benzene ring are the same as the characters and the binding position thereof to the benzene ring in formulas (12) and (9).

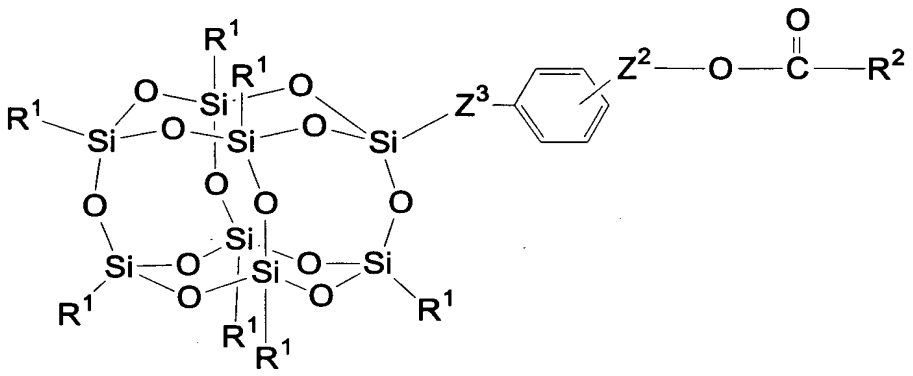
31. The production process according to Claim 12, characterized by providing a silicon compound represented by formula (11) through reacting a compound represented by formula (9) with a compound represented by formula (12) and acid-catalyzed transesterificating in alcohol,



·3M (12)



(9)

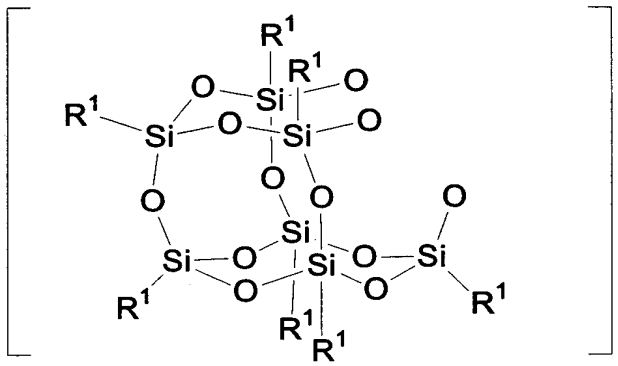


(11)

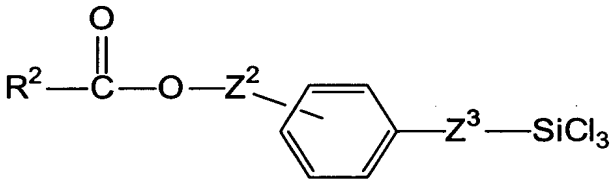
wherein: in formula (12), all of seven R^1 are the same groups selected from the group consisting of (i) ethyl, (ii) 2-methylpropyl, (iii) 2,4,4-trimethylpentyl, (iv) cyclopentyl, (v) cyclohexyl, (vi) trifluoropropyl, (vii) tridecafluoro-1,1,2,2-tetrahydrooctyl and (viii) unsubstituted phenyl, and M is a monovalent alkali metal atom, in formula (9), R^2, Z^2, Z^3, and the binding position thereof to the benzene ring are the same as R^2, Z^2, Z^3, and the binding position thereof to the benzene ring in formula (6) as described in Claim 12,

and in formula (11), the characters and the binding position thereof to the benzene ring are the same as the characters and the binding position thereof to the benzene ring in formulas (12) and (9).

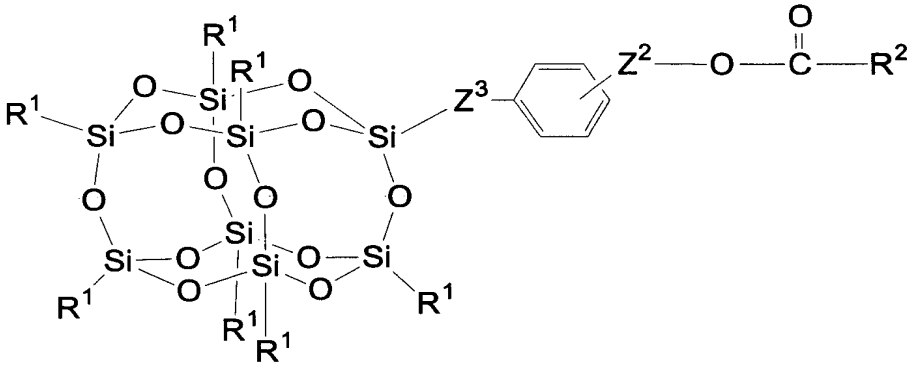
32. The production process according to Claim 12, characterized by providing a silicon compound represented by formula (11) through reacting a compound represented by formula (9) with a compound represented by formula (12) and acid-catalyzed transesterificating in alcohol,



·3M (12)



(9)



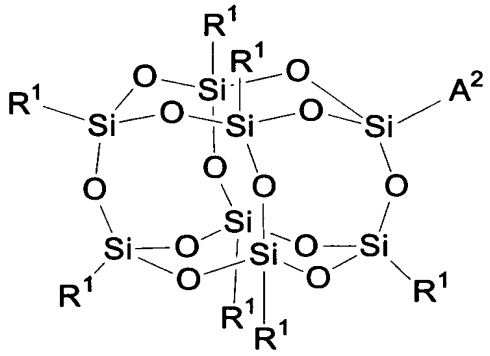
(11)

wherein: in formula (12), all of seven R^1 are either unsubstituted phenyl or trifluoropropyl and M is a monovalent alkali metal atom, in formula (9), R^2, Z^2, Z^3, and the binding position thereof to the benzene ring are the same as R^2, Z^2, Z^3, and the binding position thereof to the benzene ring in formula (6) as described in Claim 12, and in

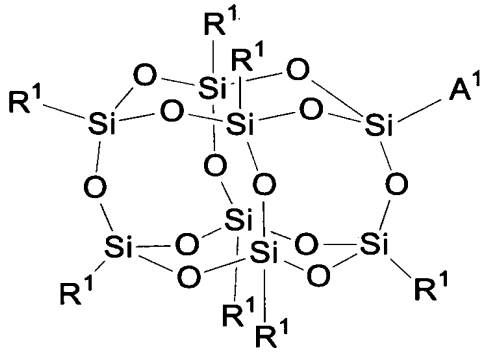
formula (11), the characters and the binding position thereof to the benzene ring are the same as the characters and the binding position thereof to the benzene ring

in formulas (12) and (9).

33. A silicon compound represented by formula (1), being prepared from a silicon compound represented by formula (2),



(1)



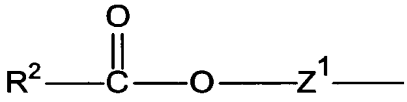
(2)

wherein: in formula (1), each of seven R^1 is independently selected from the group consisting of (a) hydrogen, (b) C_1-C_{45} alkyl wherein each hydrogen may be optionally substituted with fluorine and each $-CH_2-$ group may be optionally replaced with $-O-$, $-CH=CH-$, cycloalkylene or cycloalkenylene, (c) substituted or unsubstituted aryl and (d) substituted or unsubstituted arylalkyl wherein each hydrogen of the alkenylene may be optionally substituted with fluorine and each $-CH_2-$ group of said alkenylene may be optionally replaced with $-O-$ or $-CH=CH-$; and A^2 is a hydroxyl-

terminal organic group, and in formula (2), R^1 is the same as R^1 in formula (1) and A^1 is an organic compound having an acyloxy group.

34. The silicon compound according to Claim 33, (a) in formula (1),all of seven R^1 are the same functional groups selected from the group consisting of (i) ethyl, (ii) 2-methylpropyl, (iii) 2,4,4-trimethylpentyl, (iv) cyclopentyl, (v) cyclohexyl, (vi) trifluoropropyl, (vii) tridecafluoro-1,1,2,2,-tetrahydrooctyl and (viii) unsubstituted phenyl; (b) A^2 is a group represented by formula (3) and (c) A^1 in formula (2) is a group represented by formula (4),

(3)

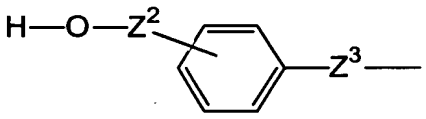


(4)

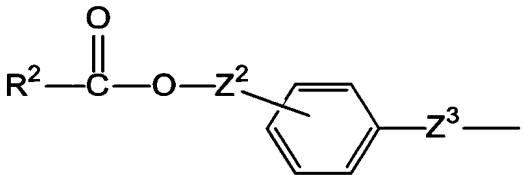
wherein: in formula (3), Z^1 is either C_1-C_{22} alkylene where each $-CH_2-$ group may be optionally replaced with $-O-$, or C_3-C_8 alkenylene where each $-CH_2-$ group may be optionally replaced with $-O-$; in formula (4), R^2 is selected from the group consisting of C_1-C_{17} alkyl where each hydrogen may be optionally substituted with fluorine, C_2-C_3 alkenyl, substituted or unsubstituted phenyl and unsubstituted phenylalkyl, and Z^1 is the same as Z^1 in formula (3).

35. The silicon compound according to Claim 33, (a) in formula (1),all of seven R^1 are the same functional groups selected from the group consisting of (i) ethyl, (ii) 2-methylpropyl, (iii) 2,4,4-trimethylpentyl, (iv) cyclopentyl, (v) cyclohexyl, (vi) trifluoropropyl, (vii) tridecafluoro-1,1,2,2,-tetrahydrooctyl and (viii) unsubstituted phenyl; (b) A^2 is a group represented by formula (5) and (c) A^1 in formula (2) is a group

represented by formula (6),



(5)



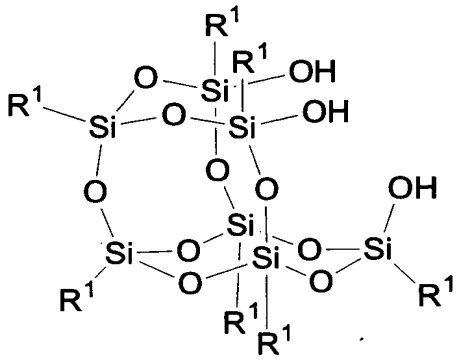
(6)

wherein: in formula (5), (A) Z^2 represents a single bond or C_1-C_3 alkylene and may be bound to the benzene ring at any carbon position, (B) Z^3 is either C_1-C_{22} alkylene where each $-CH_2-$ may be optionally replaced with $-O-$, or C_3-C_8 alkenylene where each $-CH_2-$ may be optionally replaced with $-O-$, in formula (6), R^2 is selected from the group consisting of C_1-C_{17} alkyl, C_2-C_3 alkenyl, substituted or unsubstituted phenyl and unsubstituted phenylalkyl, and Z^2 and Z^3 are the same as Z^2 and Z^3 in formula (5).

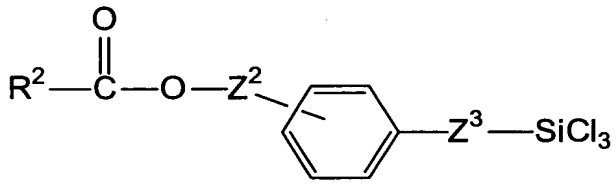
36. The silicon compound according to Claim 34, wherein all of seven R^1 are either unsubstituted phenyl or trifluoropropyl.

37. The silicon compound according to Claim 35, wherein all of seven R^1 are either unsubstituted phenyl or trifluoropropyl.

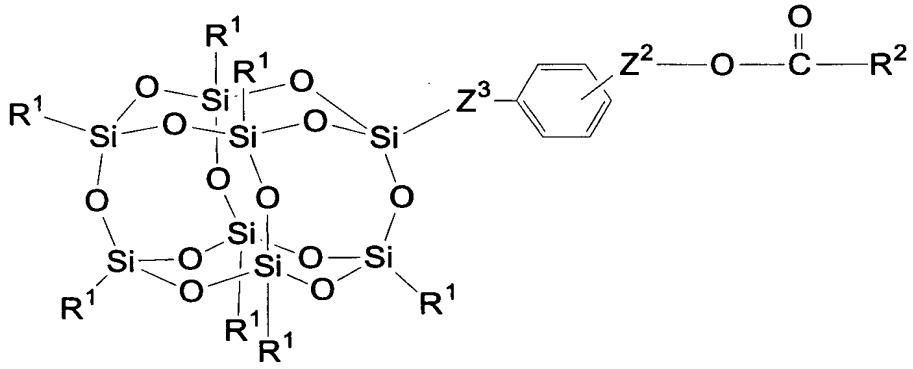
38. The production process according to Claim 12, characterized by providing a silicon compound represented by formula (11) through reacting a compound represented by formula (9) with a compound represented by formula (7) and acid-catalyzed transesterificating in alcohol,



(7)



(9)



(11)

wherein: in formula (7), all of seven R^1 are the same group selected from the group consisting of (i) ethyl, (ii) 2-methylpropyl, (iii) 2,4,4-trimethylpentyl, (iv) cyclopentyl, (v) cyclohexyl, (vi) trifluoropropyl, (vii) tridecafluoro-1,1,2,2-tetrahydrooctyl and (viii) unsubstituted phenyl, in formula (9), R^2, Z^2, Z^3, and the binding position thereof to the benzene ring are the same as R^2, Z^2, Z^3, and the binding position thereof to the benzene ring in formula (6) as described in Claim 12, and in formula (11), the characters and the binding position thereof to the benzene ring are the same as the characters and the

binding position thereof to the benzene ring in formulas (7) and (9).